A Review of the MAP/K-PREP Linking Study and College Readiness (ACT) Benchmarks

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Let's say we have an 8th grade student who took the MAP math test in the fall, and that he scored a 235.

- What do we know? His score would place him at the 69th percentile relative to other 8th graders in math (based on NWEA's 2015 status norms)

- But is this student on track to do well on the K-PREP? How about the ACT? How does his score compare to that of students at his favorite college?

Student Example

Presentation Overview

1. K-PREP / MAP Linking Study (2015)

2. MAP College Readiness (ACT) Benchmarks (2015)

3. Linking MAP Scores to College and Universities (2015)

K-PREP / MAP Linking Study

K-PREP / MAP Linking Study

- <u>Primary purpose</u> – Identify scores on the NWEA RIT scale that correspond with proficiency categories on the K-PREP

- Study based on matched student testing data; nearly 50,000 students who took both tests in spring '13 or '14

- Can determine if a student is "on-track" for proficiency after fall, winter, and spring testing

- Used an equipercentile method to generate these cutscores

KENTUCKY LINKING STUDY

A Study of the Alignment of the NWEA RIT Scale with the Kentucky Performance Rating for Educational Progress (K-PREP) Testing Program

August 2015

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TABLE SET 2 – MINIMUM ESTIMATED PRIOR SEASON (**FALL / WINTER**) RIT CUT SCORES
CORRESPONDING TO STATE PERFORMANCE LEVELS

MATH - Fall (Prior) Season							
Cut Scores and %tiles for each State Performance Level							
Grade	Novice	Apprentice		Proficient		Distinguished	
	Cut Score	Cut Score	%tile	Cut Score	%tile	Cut Score	%tile
2	<168	168	25	179	56	190	84
3	<182	182	26	192	55	203	83
4	<190	190	19	202	50	213	79
5	<197	197	16	211	49	225	82
6	<201	201	14	217	48	230	79
7	<208	208	19	225	56	239	84
8	<213	213	23	230	58	247	88

READING - Fall (Prior) Season							
Cut Scores and %tiles for each State Performance Level							
Grade	Novice	Apprentice		Proficient		Distinguished	
	Cut Score	Cut Score	%tile	Cut Score	%tile	Cut Score	%tile
2	<167	167	31	177	56	186	77
3	<180	180	30	191	57	200	77
4	<190	190	30	201	57	213	83
5	<198	198	31	207	53	220	83
6	<203	203	30	212	53	225	83
7	<205	205	27	215	51	228	81
8	<211	211	35	221	59	234	86

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K-PREP MAP Cut Scores

Student Name	School	Grade	Fall Math RIT	Fall Math Percentile	Fall Math Projection for K-PREP	Fall Math Projection for ACT College Readiness	Winter Math RIT	Winter Math Percentile	Winter Math Projection for K-PREP
		09	248	84		On Track 24	238	62	
		09	246	81		On Track 22	238	62	
		10	240	69			234	55	
		11	239	61			241	63	
		08	239	76	Proficient	On Track 22	236	65	Proficient
		07	239	84	Distinguished	On Track 24	227	52	Apprentice
		08	236	71	Proficient	On Track 19	233	58	Proficient
		10	235	60					

K-PREP Cut Scores in CIITS

Probability of Proficiency

The K-PREP linking study can also tell you the probability that a student will be proficient on the K-PREP test

An 8th grader with a RIT score of 235 in math in the fall would have a 62% chance of bring proficient on the K-PREP in the spring

TABLE SET 4 – ESTIMATED PROBABILITY OF SCORING PROFICIENT OR HIGHER ON THE STATE TEST IN PRIOR SEASONS (**FALL / WINTER**), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP

MATH - Fall (Prior) Season							
Estimated Probability of Passing State Test Based on Observed MAP Score							
RIT Range	2	3	4	5	6	7	8
120	*0%*	0%	0%	0%	0%	0%	0%
125	*0%*	0%	0%	0%	0%	0%	0%
130	*1%*	0%	0%	0%	0%	0%	0%
135	*1%*	0%	0%	0%	0%	0%	0%
140	*2%*	1%	0%	0%	0%	0%	0%
145	*3%*	1%	0%	0%	0%	0%	0%
150	*5%*	1%	1%	0%	0%	0%	0%
155	*8%*	2%	1%	0%	0%	0%	0%
160	*13%*	4%	1%	1%	0%	0%	0%
165	*20%*	6%	2%	1%	1%	0%	0%
170	*29%*	10%	4%	2%	1%	0%	0%
175	*40%*	15%	6%	3%	1%	1%	0%
180	*52%*	23%	10%	4%	2%	1%	1%
185	*65%*	33%	15%	7%	4%	2%	1%
190	*75%*	45%	23%	11%	6%	3%	2%
195	*83%*	57%	33%	17%	10%	5%	3%
200	*89%*	69%	45%	25%	15%	8%	5%
205	*93%*	79%	57%	35%	23%	12%	8%
210	*96%*	86%	69%	48%	33%	18%	12%
215	*97%*	91%	79%	60%	45%	27%	18%
220	*98%*	94%	86%	71%	57%	38%	27%
225	*99%*	96%	91%	80%	69%	50%	38%

*Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during the prior (**fall**) season. Example: if a fifth grade student scored 200 on a MAP test taken during the fall season, her/his estimated probability of passing the state test is 25%.

Italics represent extrapolated data.

RIT	2	3	4	5	6	7
220	*98%*	94%	86%	71%	57%	38%	27%
225	*99%*	96%	91%	80%	69%	50%	38%
230	*99%*	98%	94%	87%	79%	62%	50%
235	*100%*	99%	96%	92%	86%	73%	62%
240	*100%*	99%	98%	95%	91%	82%	73%
245	*100%*	100%	99%	97%	94%	88%	82%
250	*100%*	100%	99%	98%	96%	92%	88%

MAP/K-PREP Correlation & Prediction Accuracy

| Grade	Math Correlation Pearson's r	Reading Correlation Pearson's r
3	0.782	0.735
4	0.800	0.725
5	0.816	0.712
6	0.803	0.740
7	0.814	0.747
8	0.805	0.747

Grade	Sample Size	MAP Accurately Predicted State Performance	MAP Underestimated State Performance	MAP Overestimated State Performance
Mathematics				
3	9633	81.7%	9.7%	8.6%
4	10164	82.8%	8.1%	9.1%
5	10008	83.2%	8.7%	8.1%
6	10448	83.7%	8.8%	7.5%
7	10310	85.6%	7.2%	7.2%
8	10001	83.5%	7.7%	8.8%
Reading				
3	9616	80.6%	10.1%	9.3%
4	10163	80.0%	10.1%	9.8%
5	10008	79.5%	9.4%	11.2%
6	10439	80.9%	9.6%	9.4%
7	10281	80.8%	9.2%	10.0%
8	10036	79.8%	10.4%	9.9%

College Readiness (ACT) Benchmarks

College Readiness (ACT) Benchmarks
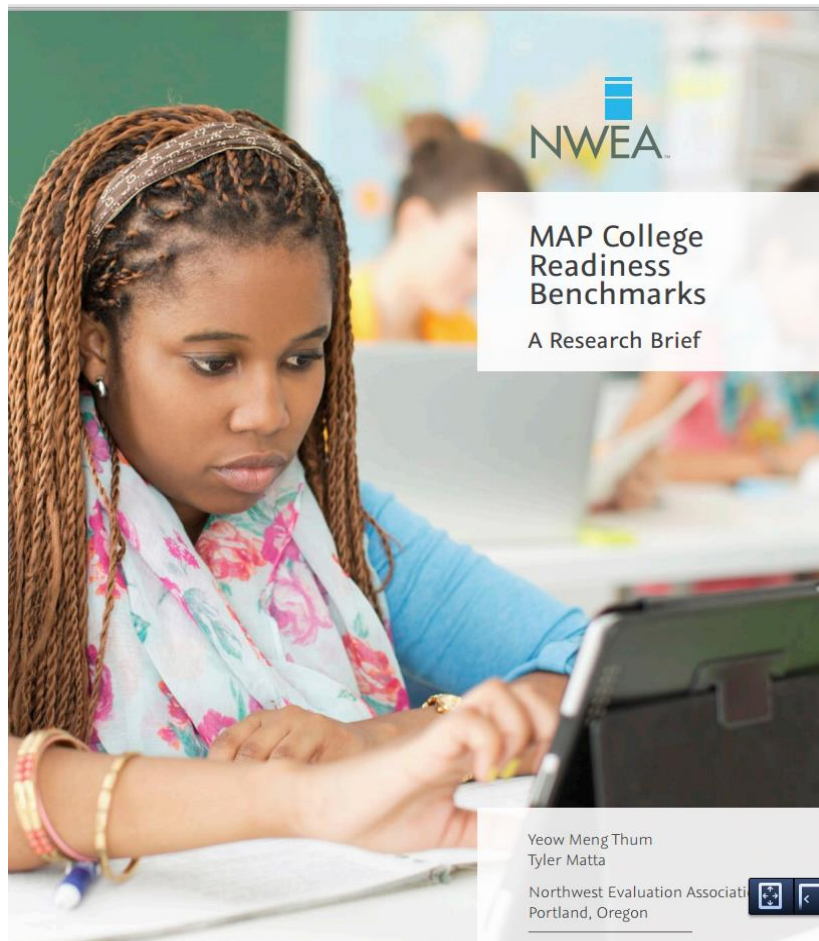
- Series of college readiness benchmarks for students in grade 5-9 in math and reading for both the fall and spring for ACT scores of 22 and 24

- Based on results from over 400 schools, 83K students, and 621k test events

- Uses longitudinal data from all students in these schools, not just those students who take the ACT (since that would introduce self-selection bias into these benchmarks)

College Readiness Benchmarks (ACT 22 & 24)

Table 5: Normative Stringency and Classification Accuracy of Pooled Benchmarks for MAP Mathematics and Reading Tests

Grade	Term	Mathematics, ACT=22					Mathematics, ACT=24				
		Benchmark	SE	Pct	TPR	FPR	Benchmark	SE	Pct	TPR	FPR
5	Fall	217.31	0.04	65	0.67	0.19	221.33	0.04	74	0.63	0.15
5	Spring	225.58	0.04	61	0.70	0.16	229.74	0.04	70	0.67	0.14
6	Fall	225.30	0.04	68	0.70	0.15	229.63	0.04	79	0.68	0.13
6	Spring	232.34	0.03	66	0.72	0.14	236.82	0.03	76	0.68	0.11
7	Fall	232.20	0.03	71	0.72	0.13	236.84	0.03	81	0.68	0.10
7	Spring	238.06	0.03	70	0.73	0.13	242.85	0.03	79	0.70	0.10
8	Fall	238.00	0.03	74	0.73	0.13	242.96	0.03	83	0.70	0.10
8	Spring	242.73	0.04	74	0.73	0.13	247.83	0.04	81	0.70	0.10
9	Fall	242.72	0.04	76	0.73	0.13	247.99	0.04	84	0.69	0.10
9	Spring	246.35	0.04	74	0.73	0.13	251.76	0.04	83	0.70	0.10

Grade	Term	Reading, ACT=22					Reading, ACT=24				
		Benchmark	SE	Pct	TPR	FPR	Benchmark	SE	Pct	TPR	FPR
5	Fall	209.31	0.04	59	0.71	0.20	212.62	0.04	69	0.70	0.18
5	Spring	214.70	0.04	59	0.72	0.18	217.94	0.04	66	0.72	0.17
6	Fall	214.97	0.04	61	0.73	0.18	218.32	0.04	68	0.72	0.16
6	Spring	219.59	0.03	61	0.74	0.17	222.87	0.03	69	0.73	0.15
7	Fall	219.83	0.03	64	0.74	0.17	223.21	0.03	71	0.73	0.15
7	Spring	223.73	0.03	65	0.75	0.16	227.04	0.03	72	0.73	0.13
8	Fall	223.88	0.03	67	0.75	0.16	227.31	0.03	73	0.73	0.14
8	Spring	227.10	0.03	67	0.75	0.16	230.46	0.03	74	0.73	0.14
9	Fall	227.14	0.04	67	0.74	0.17	230.61	0.04	75	0.73	0.16
9	Spring	229.72	0.04	69	0.74	0.17	233.11	0.04	75	0.72	0.15

Note: SE = Std. Error   Pct = Percentile   TPR = True Positive Rate   FPR = False Positive Rate

Kentucky College Readiness Benchmarks (ACT 19 & 20)

Grade	Term	Mathematics, ACT = 19			Mathematics, ACT = 20		
		Benchmark	SE	Pctile	Benchmark	SE	Pctile
5	Fall	211.27	0.04	50	213.29	0.04	55
5	Spring	219.33	0.04	45	221.41	0.04	50
6	Fall	218.79	0.03	53	220.96	0.03	59
6	Spring	225.62	0.03	51	227.86	0.03	56
7	Fall	225.21	0.03	56	227.54	0.03	62
7	Spring	230.87	0.03	55	233.26	0.03	60
8	Fall	230.55	0.03	59	233.03	0.03	65
8	Spring	235.06	0.03	59	237.62	0.03	64
9	Fall	234.79	0.04	60	237.43	0.04	65
9	Spring	238.21	0.04	60	240.92	0.04	65

Grade	Term	Reading, ACT = 19			Reading, ACT = 20		
		Benchmark	SE	Pctile	Benchmark	SE	Pctile
5	Fall	204.34	0.04	46	206.00	0.04	51
5	Spring	209.85	0.04	45	211.46	0.04	49
6	Fall	209.94	0.04	47	211.62	0.04	52
6	Spring	214.68	0.03	47	216.32	0.03	52
7	Fall	214.74	0.03	51	216.44	0.03	55
7	Spring	218.75	0.03	52	220.41	0.03	56
8	Fall	218.74	0.03	54	220.46	0.03	58
8	Spring	222.07	0.03	55	223.74	0.03	59
9	Fall	221.94	0.04	54	223.68	0.04	59
9	Spring	224.62	0.04	57	226.32	0.04	61

Student Name ⇕	School ⇕	Grade ⇕	Fall Math RIT ▾	Fall Math Percentile ⇕	Fall Math Projection for K-PREP ⇕	Fall Math Projection for ACT College Readiness ⇕	Winter Math RIT ⇕	Winter Math Percentile ⇕	Winter Math Projection for K-PREP ⇕
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College Readiness (ACT) Benchmarks in CIITS

Linking MAP Scores to Colleges and Universities Across the U.S.

Connecting MAP Scores to Colleges/Universities
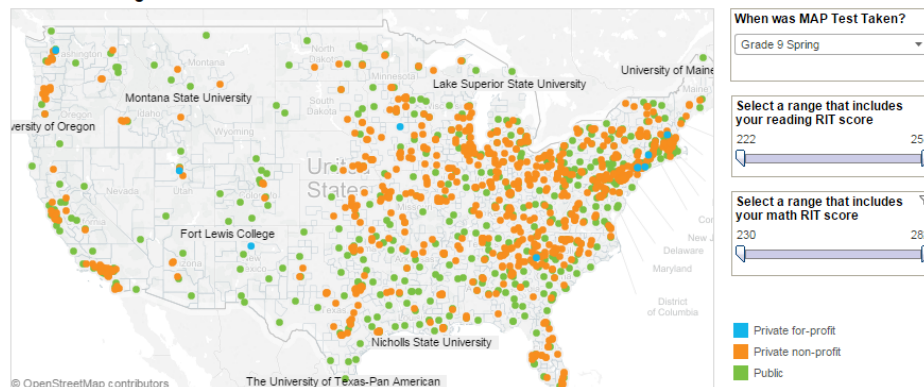
Questions?

Questions arise later on? Send them to: nate.jensen@nwea.org

Thanks!

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